A2 cont.

carbonate, magnesium oxide, magnesium trisilicate, sodium citrate, meglumine, or triethanolamine.

30 ~~29~~. (New) The process of claim 1, further comprising using an excipient during the preparation of the biodegradable porous microspheres, wherein the excipient comprises a salt.

31 ~~30~~. (New) The process of claim 1, further comprising using an excipient during the preparation of the biodegradable porous microspheres, wherein the excipient comprises sodium chloride or calcium chloride.

It is believed that no fees are due in connection with the filing of this Preliminary Amendment. However, if any fees are due, the Assistant Commissioner is hereby authorized to deduct said fees from Conley, Rose & Tayon Deposit Account No. 50-1505/5333-02600/EBM.

Respectfully submitted,

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Strikethrough Version of Amended Claims

1. (Amended) A process to prepare an injectable sustained release pharmaceutical composition comprising ~~a step to prepare~~ preparing biodegradable porous microspheres having accessible ionic functional groups, ~~a step to incorporate~~ incorporating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a solution ~~containing~~ comprising the biopharmaceutical and ~~a step to recover and freeze-dry~~ recovering and freeze-drying the biopharmaceutical-incorporated microspheres.

2. (Amended) The process of claim 1, wherein the injectable sustained release pharmaceutical composition is prepared by incorporation of a cationic biopharmaceutical into biodegradable porous microspheres having anionic functional groups and wherein the pH of incorporation solution is lower than the pI of the biopharmaceutical.

3. (Amended) The process of claim 1, wherein the injectable sustained release pharmaceutical composition is prepared by incorporation of an anionic biopharmaceutical into biodegradable porous microspheres having cationic functional groups and wherein the pH of incorporation solution is higher than the pI of the biopharmaceutical.

4. (Amended) The process of claim ~~1-3~~ 1, wherein ~~said~~ the biopharmaceutical is present in an amount from 0.1 % to 90 % weight.

5. (Amended) The process of claim ~~1-3~~ 1, wherein ~~said~~ the biodegradable ~~polymer is~~ porous microspheres comprises ~~one or more of~~ polylactides, polyglycolides, poly(lactide-co-glycolide)s, polycaprolactone, polycarbonates, polyesteramides, polyanhydrides, poly(amino acids), polyorthoesters, polyacetyls, polycyanoacrylates, polyetheresters, poly(dioxanone)s, poly(alkylene alkylate)s, copolymers of polyethylene glycol and polyorthoester, biodegradable polyurethanes or a mixture thereof. ~~, proteins such as albumin, casein, collagen, fibrin,~~

~~fibrinogen, gelatin, hemoglobin, transfferin, and zein, polysaccharides such as alginic acid, chitin, chitosan, chondroitin, dextrin, dextran, hyaluronic acid, heparin, keratan sulfate, starch and derivatives or blends thereof.~~

6. (Amended) The process ~~according to any of the claims 2, 4, 5~~ of claim 2, wherein ~~said~~ the anionic functional groups ~~are selected from~~ comprise carboxyl, sulfonyl ~~and~~ or phosphoryl groups.

7. (Amended) The process ~~according to any of the claims 2, 4, 5~~ of claim 2, wherein ~~said~~ the biodegradable porous microspheres ~~having anionic functional groups~~ are prepared from the blends of anionic surfactant and/or biocompatible materials having anionic functional group with biodegradable polymer.

8. (Amended) The process of claim 7, wherein ~~said~~ the anionic surfactant ~~is selected from~~ comprises docusate sodium ~~and~~ or sodium lauryl sulfate.

9. (Amended) The process ~~according to any of the claims 3, 4, 5~~ of claim 3, wherein ~~said~~ the cationic functional groups ~~are selected from~~ comprise primary ~~to~~ , secondary, tertiary, or quaternary amine groups.

10. (Amended) The process ~~according to any of the claims 3, 4, 5~~ of claim 3, wherein ~~said~~ the biodegradable porous microspheres ~~having cationic functional groups~~ are prepared from the blends of cationic surfactant or biocompatible materials having cationic functional group with biodegradable polymer.

11. (Amended) The process of claim **Error! Reference source not found.**, wherein ~~said~~ the cationic surfactant ~~is selected from~~ comprises benzalkonium chloride, benzethonium chloride, ~~and~~ or cetrimide.

12. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, wherein ~~said~~ the biopharmaceutical ~~is selected from the group consisting of~~ comprises growth hormones, interferons, colony stimulating factors, interleukins, macrophage activating factors, macrophage peptides, B cell factors, T cell factors, protein A, suppressive factor of allergy, suppressor factors, cytotoxic glycoprotein, immunocytotoxic agents, immunotoxins, immunotherapeutic polypeptides, lymphotoxins, tumor necrosis factors, cachectin, oncostatins, tumor inhibitory factors, transforming growth factors, albumin and its fragments, alpha-1 antitrypsin, apolipoprotein-E, erythroid potentiating factors, erythropoietin, factor VII, factor VIII, factor IX, fibrinolytic agent, hemopoietin-1, kidney plasminogen activator, tissue plasminogen activator, urokinase, prourokinase, streptokinase, lipocortin, lipomodulin, macrocortin, lung surfactant protein, protein C, protein 5, C-reactive protein, renin inhibitors, collagenase inhibitors, superoxide dismutase, epidermal growth factor, platelet derived growth factor, osteogenic growth factors, atrial naturetic factor, auriculin, atriopeptin, bone morphogenetic protein, calcitonin, calcitonin precursor, calcitonin gene-related peptide, cartilage inducing factor, connective tissue activator protein, fertility hormones (follicle stimulating hormone, leutinizing hormone, human chorionic gonadotropin), growth hormone releasing factor, osteogenic protein, insulin, proinsulin, nerve growth factor, parathyroid hormone, parathyroid hormone inhibitors, relaxin, secretin, somatomedin C, insulin-like growth factors, inhibin, adrenocorticotrophic hormone, glucagons, vasoactive intestinal polypeptide, gastric inhibitory peptide, motilin, cholecystokinin, pancreatic polypeptide, gastrin releasing peptide, corticotropin releasing factor, thyroid stimulating hormone, or vaccine antigens of, and anti-infective antibodies to, bacterial or viral or other infectious organisms and mutants or analogs thereof.

13. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, ~~wherein said~~ further comprising preparing the biodegradable porous microspheres ~~having ionic functional groups are prepared by a method selected from~~ by solvent extraction or evaporation in aqueous or organic

phase, phase separation, spray drying, low temperature casting ~~and~~ or a supercritical gas fluid method.

14. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, wherein porosity of ~~said~~ the biodegradable porous microspheres ~~having ionic functional groups~~ is ~~intended to be~~ increased by addition of gas forming agents or salts ~~such as sodium chloride, calcium chloride and ammonium bicarbonate~~ during the microsphere preparation process.

15. (Amended) The process ~~according to any of the claims 1-3 wherein said~~ of claim 1, further comprising using an excipient during the preparation of the biodegradable porous microspheres ~~having ionic functional groups are prepared by co-addition of~~ wherein the excipient comprises an acidifying agent ~~agents such as lactic acid, glycolic acid, tartaric acid, citric acid, fumaric acid, and malic acid, alkalizing agents such as diethanolamine, mono ethanolamine, potassium citrate, sodium bicarbonate, calcium carbonate, magnesium carbonate, magnesium oxide, magnesium trisilicate, sodium citrate, meglumine, and triethanolamine and salts~~.

16. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, wherein ~~the incorporation~~ incorporating ~~of a~~ the biopharmaceutical into ~~said~~ the biodegradable porous microspheres ~~having ionic functional groups are~~ is performed in an aqueous buffer solution, where the pH of the buffer is from 3.0 to 9.0, a salt concentration of the buffer is from 1 to 500 mM, an incorporation temperature is from 5 to 50°C and an incorporation time is from 1 minute to 20 days.

17. (Amended) The process of ~~the~~ claim 16, wherein the salt concentration of the buffer is from 5 to 200 mM, the incorporation temperature is from 30 to 42°C and the incorporation time is from 10 to 48 hours.

18 (Amended) The process of claim 16, wherein the ~~incorporation medium~~ aqueous buffer solution further comprises a release rate modifying additive or excipient or a cryoprotectant.

19. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, ~~wherein the composition is further coated~~ further comprising coating the composition with one or more of gelatin, fibrin, or albumin.

20. (Amended) The process ~~according to any of the claims 1-3~~ of claim 1, wherein the size of the microspheres is within the range from 0.01 to 500 μm.

21. (Amended) An injectable sustained release pharmaceutical composition ~~by preparing the process according to any of claims 1 to 20~~ prepared by the process comprising:

preparing biodegradable porous microspheres having accessible ionic functional groups;

incorporating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a solution comprising the biopharmaceutical; and

recovering and freeze-drying the biopharmaceutical-incorporated microspheres.